c) computing a surround red response, a surround green response and a surround yellow response based on said images;

d) computing a red, a green and a blue on-center opponent and filtered opponent response, based on said center and surround responses;

e) computing a red, a green and a yellow off-center opponent and filtered opponent response based on said center and surround responses;

f) computing a red, a green and a blue double-opponent response (do-response) and a corresponding filtered double-opponent response based on said on-center and off-center filtered opponent responses;

g) computing a red, a green and a blue do-remote response [signal] based on a set of responses selected from the group consisting of said on-center filtered opponent responses and said filtered double-opponent responses; and

h) for each pixel: correcting each of said red, green, and blue double-opponent responses for color contrast using respectively said red, green and blue do-remote response [signals], thereby producing corrected red, green and blue double-opponent responses.

2. (Original) The method of claim 1, further comprising the steps of: at each pixel:

i) computing a yellow center response and a blue surround response;

j) computing a yellow double-opponent response and a corresponding yellow filtered double-opponent response based on said yellow center and said blue surround responses;

k) computing a yellow do-remote signal based on a response selected from the group consisting of said yellow center response and said filtered yellow double-opponent response; and

l) for each pixel: correcting said yellow double-opponent response for color contrast using said yellow do-remote signal, thereby producing a corrected yellow double-opponent response.

3. (Original) The method of claim 1, wherein said step of providing a red image, a green image, and a blue image includes: at each pixel:

i) multiplying the intensity spectrum by a spectral response function of a red photoreceptor, thereby providing a red spectral product;

ii) multiplying the intensity spectrum by a spectral response function of a green photoreceptor, thereby providing a green spectral product; iii) multiplying the intensity spectrum by a spectral response function of a blue photoreceptor, thereby providing a blue spectral product;

iv) integrating said red spectral product,

v) integrating said green spectral product, and

vi) integrating said blue spectral product.

4. (Original) The method of claim 1, wherein said step of computing a center red response, a center green response and a center blue response includes, for each said image, convolving said image with a center local spatial filter; and wherein said step of computing a surround red response, a surround green response and a surround yellow response includes, for each said image, convolving said image with a surround local spatial filter.

5. (Original) The method of claim 2, wherein said step of computing said red on-center filtered opponent response includes subtracting said green surround response from said red center response, said step of computing said green on-center filtered opponent response includes subtracting said red surround response from said

green center response, said step of computing said blue on-center response includes subtracting said yellow surround response from said blue center response.

6. (Original) The method of claim 2, wherein said step of computing said red off-center filtered opponent response includes subtracting said green surround response from said red center response, said step of computing said green off-center filtered opponent response includes subtracting said red surround response from said green center response, and said step of computing said yellow off-center filtered opponent response includes subtracting said yellow surround response from said blue center response.

7. (Original) The method of claim 1, wherein said step of computing said red, green and blue filtered double-opponent responses based on said on-center and off-center filtered opponent responses further includes computing respective red, green and blue double-opponent center responses and respective red, green and blue double-opponent surround response.

8. (Original) The method of claim 7, wherein said step of computing each said double-opponent center response includes convolving a center filtered response with a center spatial weight function.

9. (Amended) The method of claim 7 [1], wherein said step of computing each said double-opponent surround response includes convolving a surround filtered response with a surround spatial weight function.

10. (Original) The method of claim 8, wherein said center spatial weight function is an exponentially decaying function.

11. (Original) The method of claim 9, wherein said surround spatial weight function is an exponentially decaying function.

12. (Original) The method of claim 7, wherein said step of computing each said do-remote response includes convolving a corresponding response selected from the group consisting of a said on-center filtered opponent response and a said double-opponent center response, with a remote spatial weight function.

13. (Original) The method of claim 12, wherein said spatial weight function in chosen from the group consisting of exponentially decaying functions and Gaussian functions.

14. (Amended) The method of claim 2 [1], wherein said step of correcting each of said red, green, and blue double-opponent responses for color contrast includes the steps of: for each said double-opponent response

a) computing a respective adaptive function G_b; and

b) computing a respective adaptation factor, based on said respective adaptive function.

15. (Original) The method of claim 14, further including applying said respective adaptation factor as a respective semi-saturation factor in a Naka-Rushton type equation operating on each of said double-opponent responses .

16. (Original) The method of claim 2, wherein said step of correcting said yellow double-opponent response for color contrast includes the steps of: for each said double-opponent response:

c) computing an adaptive function G_b;

d) computing an adaptation factor, based on said adaptive function.

17. (Original) The method of claim 14, further including applying said adaptation factor as a semi-saturation factor in a Naka-Rushton type equation operating on said yellow double-opponent response.

18. (Original) The method of claim 15, wherein said adaptive function is identical to said do-remote response.

19. (Original) The method of claim 15, wherein said adaptive function is time-dependent.

20. (Original) The method of claim 17, wherein said adaptive function is identical to said do-remote response.

21. (Original) The method of claim 17, wherein said adaptive function is time-dependent.

22. (Original) The method of claim 19, wherein said time-dependency of said adaptive function is obtained by a convolution of said double-opponent response with a temporal filter .

23. (Original) The method of claim 21, wherein said time-dependency of said adaptive function is obtained by a convolution of said double-opponent response with a temporal filter .

24. (Original) The method of claim 22, wherein said temporal filter is an exponentially decaying time function.

25. (Original) The method of claim 23, wherein said temporal filter is an exponentially decaying time function.

26. (Original) The method of claim 22, wherein said temporal filter is normalized by a denominator equal to $\tau_b(t) = \tau_m/(1+abs(G(t)-G_b(t))/G_n)$ where τ_m is an expected maximum value of said decaying time function,and where G_n is a normalization constant.

27. (Original) The method of claim 23, wherein said temporal filter is normalized by a denominator equal to $\tau_b(t) = \tau_m/(1+abs(G(t)-G_b(t))/G_n)$ where τ_m is an expected maximum value of said decaying time function,and where G_n is a normalization constant.

28. (Original) The method of claim 1, further comprising the step of: inversely transforming said corrected double-opponent responses into corresponding new red, green and blue center responses .

29. (Amended) The method of claim 28, wherein said inversely transforming includes transforming said new center [double-opponent cell] responses into new opponent cell responses.

30. (Original) The method of claim 2, further comprising the step of: inversely transforming said corrected yellow double-opponent response to obtain a new yellow opponent response.

31. (Cancelled)

32. (Cancelled)

33. (Amended) A method for adjusting an achromatic contrast of a scene, the scene including an intensity spectrum at each of a plurality of pixels, the method comprising the steps of:

a) providing an image that has an intensity value at each of the plurality of pixels;

b) obtaining an adapted opponent center response using a plurality of said pixel intensity values by:

i) calculating an opponent center response;

ii) providing a center adaptation factor that includes a remote center adaptation term, and

iii) combining said opponent center response and said center adaptation factor; and

c) at each pixel, correcting the achromatic contrast using said adapted opponent center response.

34. (Original) The method of claim 33, wherein said adaptation factor further includes a local center adaptation term.

35. (Amended) The method of claim 33 [32], further comprising obtaining an adapted opponent surround response, wherein said step of correcting for achromatic [intensity] contrast includes subtracting said adapted opponent surround response from said adapted opponent center response.

36. (Original) The method of claim 35, wherein said step of obtaining an adapted opponent surround response includes:

i) calculating an opponent surround response;

ii) providing a surround adaptation factor, and

iii) combining said opponent surround response and said surround adaptation factor.

37. (Original) The method of claim 36, wherein said surround adaptation factor includes a remote surround adaptation term.

38. (Original) The method of claim 36, wherein said surround adaptation factor further includes a local surround adaptation term.

39. (Amended) The method of claim 33 [31], wherein said step of providing pixel intensity values includes: at each pixel: i) multiplying the intensity spectrum by a spectral response function, thereby providing a spectral product; and ii) integrating said spectral product.

40. (Amended). The method of claim 33, wherein said step of obtaining an adapted opponent center response includes convolving each said pixel intensity value with a center spatial weight function.

41. (Original) The method of claim 36, wherein said step of obtaining an opponent surround response includes convolving each said pixel intensity value with a surround spatial weight function.

42. (Original) A method for adjusting an achromatic contrast of a scene, the scene including an intensity spectrum at each of a plurality of pixels, the method comprising the steps of:

a) providing an image having a pixel value at each of the plurality of pixels;

b) computing a center response based on said image;

c) computing a surround response based on said image;

d) computing an on-center filtered opponent response,

based on said center and surround responses;

e) computing an off-center filtered opponent response based on said center and surroundresponses;

f) computing a double-opponent response and a corresponding filtered double-opponent response based on said on-center and off-center filtered opponent responses;
g) computing a do-remote response; and

h) for each pixel: correcting said double-opponent responses for achromatic contrast using said do-remote signal.

43. (Original) The method of claim 42, wherein said step of providing an image includes: at each pixel:

i) multiplying the intensity spectrum by a spectral response function to obtain a spectral product; and

ii) integrating said spectral product.

44. (Original) The method of claim 42, wherein said step of computing a center response includes convolving said image with a center local spatial filter.

45. (Original) The method of claim 42, wherein said step of computing said on-center filtered opponent response includes subtracting an on-center surround response from an on-center center response.

46. (Original) The method of claim 42, wherein said step of computing said off-center filtered opponent response includes subtracting an off-center surround response from an off-center center response.

47. (Original) The method of claim 42, wherein said step of computing said double-opponent response and said filtered double-opponent response includes computing a double-opponent center response.

48. (Original) The method of claim 42, wherein said step of computing said double-opponent response and said filtered double-opponent response further includes computing a double-opponent surround response.